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Shifting the Culture of Quarantine



by **Dr. Rebecca Katz**

Associate Professor in the Milken Institute School of Public Health,
George Washington University

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Introduction

Over the past 15 years, public health officials and the populations they serve have been faced with a host of infectious disease hazards, including Severe Acute Respiratory Syndrome (SARS), influenza virus H5N1, influenza virus H1N1, and the threat of bioterrorism. Collectively, this has persuaded state and local authorities in the U.S. to reevaluate non-pharmaceutical interventions such as isolation, quarantine, and other social distancing measures in their response plans.¹ The 2003 global response to SARS included the first large-scale use of quarantine in recent history with many countries instituting mandatory quarantine. In the US, however, public health officials relied primarily on voluntary quarantine by exposed individuals.² Then, in a 2007 case, an uncooperative, mobile individual with potentially extremely drug resistance tuberculosis was placed under federal quarantine, the first time it had been used since 1963.^{3,4} Finally, in 2009, when novel H1N1 influenza emerged in the US, the initial lack of information about the epidemiology of the virus and mixed guidance from federal officials resulted in inconsistent decisions by localities to order school closures and other social distancing measures, ending with federal

guidance for only voluntary isolation of infected patients.^{5,6}

Most recently, the 2014-2015 Ebola virus outbreak, which subsequently spread to six countries in West Africa and four outside the region- including the United States-reinvigorated discussion over quarantine and social distancing.⁷ Policy makers, faced with a dearth of options for pharmaceutical interventions and a frightened public, looked towards quarantine, isolation, and other social distancing measures as a means to control the spread of the disease.⁸

Quarantine will likely never be a comfortable experience for anyone, but there are concrete steps that can be taken to improve the experience and help shift perceptions of quarantine in the United States from punishment to social responsibility. Changing perceptions, however, requires changing the reality of the quarantine experience, which must be done through a series of policies, regulations and tangible support to individuals who have had their freedom of movement curtailed. These actions must also be taken to reinforce the public's trust in government.

This paper looks at how quarantine has been used in recent history, assesses

what we can learn from the experiences, and proposes a set of actions the United States could take to improve the quarantine experience, and eventually change perceptions.

Definitions

Quarantine: Separation of or restricting movements of individuals who are not ill, but might have been exposed to a communicable disease. Restriction last as long as the incubation period of the disease.

Isolation: Separation of or restricting movements of individuals who are ill with a communicable disease. Restriction may last as long as individual is infectious.

Social Distancing [*]: Measures taken to restrict individuals – normally large groups–from gathering together to slow the spread of a communicable disease.

* Santa Clara Public Health Department.

Information about Social Distancing. Available at: http://www.cidrap.umn.edu/sites/default/files/public/ph/p/185/185_factsheet_social_distancing.pdf (accessed 24 August 2015)

Recent Use of Quarantine

Quarantine, although a potentially useful tool to control the spread of disease, has been used sparingly in the US over the past 50 years for numerous reasons.⁹ Public officials considering the use of social distancing measures face, not only political, ethical, and moral challenges, but depending on the pathogen, there may be limited empirical evidence to support the policy's effectiveness.¹⁰ While clearer evidence-based guidance for the use of non-pharmaceutical interventions during an emergency is essential¹¹, there are ongoing concerns about the reasons legal authorities may consider isolation and quarantine as feasible options for disease control. Although most states confer

statutory authority to public health officials to exercise such measures, state laws vary widely in their complexity and specificity.¹²

Unfamiliarity with quarantine, political pressure, and misinformation about disease has often led to inconsistent use and enforcement of quarantine. Additionally, while public health officials almost always have the police powers to utilize quarantine, many may hesitate to use the measure due to discomfort over perceived or real infringements on civil liberties.

Below are discrete examples of quarantine use from five countries around the world and the United States. These examples, taken from the SARS, West Africa Ebola virus and the Middle Eastern Respiratory Syndrome- Coronavirus (MERS-Cov) outbreaks, highlight how nations with differing levels of governance and individual rights enforced quarantines, the methods they utilized and any evidence about how the quarantined population viewed the experience. These examples provide important models for the United States to consider in developing a holistic, socially responsible approach to quarantine.

Brief Case Studies

Singapore

During the SARS outbreak in Singapore, the government ordered almost 500 people who had potentially been exposed to the virus into home quarantine.¹³ The government acted under the authority of the Infectious Disease Act (1976) and the Environmental

Public Health Act (amended in 2002.)¹⁴ Many individuals complied with the quarantine order, but a minority did not. The government admonished these individuals as threatening the security of the population, and imposed rules for enforcement. After each episode of noncompliance with the quarantine orders, the government enacted stricter regulations to enforce the quarantine, eventually ordering cameras to be installed in noncompliant homes. People were called at different times of the day and told to present themselves in front of the camera to prove they had not left the home. Individuals who were not able to present themselves to the camera were then served written warnings and given an electronic tag to monitor their movements.¹⁵ Anyone who disobeyed the quarantine after being given the electronic tag were imposed a \$10,000 fine and could be imprisoned up to six months.¹⁶ Researchers found, however, that Singaporeans who placed a high value on social responsibility were more likely to keep quarantine,¹⁷ and officials emphasized that individual rights clearly were secondary to the health and wellbeing of the nation.¹⁸

Taiwan

Taiwan suffered 668 probable cases of SARS and 346 confirmed cases during the spring of 2003.^{19,20} Taiwanese officials moved aggressively to isolate probable cases, and institute quarantines, under the authority of the Regulations Governing Quarantine (1930 and subsequently amended) and the Law on the Control of Communicable Diseases (1944 and subsequently amended with

major revisions in 2000.)^{21,22} A total of 151,270 people were quarantined; 55,215 were healthcare workers exposed to an isolated patient, close contacts of a SARS patient, or anyone sitting within three rows of a SARS patient on a plane. The remaining 95,955 people quarantined were people returning from a SARS affected area. Of all of the individuals who experienced a ten-day quarantine, 55 developed into probable cases of SARS and only 24 were confirmed as cases.²³ Those under quarantine self-monitored their temperature and food was delivered to them by public health nurses three times a day.²⁴ Subsequent research found that rapid isolation practices helped to control the outbreak, and that quarantine reduced the time from onset to diagnosis.²⁵ A news article from Taipei Times interviewed a doctor quarantined at Jen Chi Hospital, who explained that it was easier to keep quarantine and isolation when it is viewed as a social responsibility.²⁶

Liberia

In Liberia, officials tried to contain the unprecedented urban spread of Ebola in late August 2014 by placing the Monrovia slum of West Point under quarantine.²⁷ The Public Health Law from 1975 provided authority for isolation to control the spread of communicable disease, but not for quarantine- outside of the quarantine of ships/vessels per the International Sanitary Regulations.²⁸ Because of this, Liberia passed an Anti-Ebola Regulation, per Title 33 of the Public Health Law, to specifically address Ebola control measures, including quarantine, but this didn't happen until November 2014.²⁹ In August, however, the Army

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enforced the government quarantine order of West Point, by sealing off roads and blocking in residents. Food and water became scarce, people continued to die from Ebola within the quarantine zone, and residents began to take extreme measures to try to break the quarantine. Three protestors were shot trying to storm out of the neighborhood, resulting in the death of a teenage boy.³⁰ The quarantine, initially intended for 21 days, was called off after 17 due to political pressure.

Sierra Leone

At one point in the 2014-2015 Ebola epidemic in Sierra Leone, the government had quarantined more than a third of the country's population.³¹ The government published the Public Emergency Regulations in August 2014, using the powers given to the President by the 1901 Constitution, to specifically outline quarantine procedures, surveillance, burials and enforcement.³² Quarantines were used by the government to restrict population movement, search for new cases and enforce proper burials. The quarantines, however, were difficult for communities, as there were often delayed or inadequate supplies of food and water, and limited response to community requests for assistance in finding and treating cases.³³ The quarantines, which continued through August 2015, were enforced by armed soldiers.³⁴

United States

In the United States, a nurse who had volunteered for Médecins Sans Frontières in Sierra Leone was detained

upon her arrival back in the United States.³⁵ While the nurse had been in contact with Ebola patients, she was not ill upon arrival in the Newark, New Jersey. She did, though, eventually have a high temperature scan, after multiple readings. The New Jersey governor intervened and she was ordered quarantined at a local hospital, and made to stay in a tent constructed for her on hospital grounds, per State quarantine and isolation laws.³⁶ She was eventually allowed to move into a home quarantine at her house in Maine (where she was subject to Maine quarantine laws), but her case sparked a vigorous debate over civil liberties, individual rights and the evidentiary support for quarantine. Many in the public health and medical communities argued against mandatory quarantines for those who had been engaged in Ebola patient care in Guinea, Sierra Leone or Liberia. According to a CBS News Poll conducted about the same time, however, eighty percent of U.S. citizens supported quarantine of travelers arriving from West Africa, regardless of whether they were at high risk for exposure.³⁷

As of September 2015, anyone coming into the United States who had traveled to Guinea, Sierra Leone or Liberia within the past 21 days went through screening at one of the designated points of entry. Those showing any symptoms of Ebola were brought directly to designated hospitals. Those deemed high risk were instructed to restrict movements and community interactions, and undergo direct active monitoring. Those who were low risk were provided a cell phone, thermometer, and instructions for reporting regularly to their local health

department for three weeks of monitoring.³⁸

Each jurisdiction in the United States, however, has created their own rules around quarantine and enforcement. For example, family members of an individual being tested (and eventually ruled out) for Ebola in Alabama were placed in home quarantine, guarded by law enforcement placed outside their homes.³⁹

South Korea

MERS-CoV jumped from the Middle East to South Korea in May 2015. The virus spread rapidly from the initial patient, eventually leading to 186 confirmed cases and 36 deaths.⁴⁰ South Korean officials took extensive measures to monitor all casual and close contacts of suspected cases, with twice daily temperature monitoring and movement monitoring using cell phones.^{41, 42} Over 16,000 individuals were quarantined both at home and in designated facilities, with the last person released from quarantine on July 27th.⁴³ At one point- against WHO advice-the government closed over 2,400 schools, which remained closed until June 15th.⁴⁴ By the end of June, South Korea had passed new legislation to punish anyone noncompliant with quarantine or isolation orders with two years in prison and an \$18,000 fine. This new legislation also made law enforcement and first responders assist public health officials in enforcing quarantines.⁴⁵

Discussion

When quarantine was used during SARS it sparked an academic discussion over civil liberties and the role of law enforcement.⁴⁶ The global use of quarantine to control SARS also spurred the Centers for Disease Control and Prevention to reassess the federal quarantine laws and consider updates to reflect changing views on civil liberties. These discussions, however, simmered within a small group of academics and policy makers, and it wasn't until the 2014-2015 Ebola outbreak that the media, general public, and local politicians in the United States became actively engaged in reviewing the relative importance of quarantine as a tool to mitigate disease.

Our recent history with quarantine, both in the United States and around the world, demonstrates that there is wide variation in how governments utilize it, how it is enforced, and how the population receives it.⁴⁷ There also remains an ongoing debate over whether quarantine decisions are supported by evidence. But as Burkle and Hanfling (2015) have pointed out, politics often trumps science,⁴⁸ and regardless of the scientific debate over evidence and the human rights debates over civil liberties and use of law enforcement, decision makers faced with limited resources and a frightened public may turn to quarantine during an epidemic.

Figure 1 looks at the five quarantine examples discussed, charting the legal environment, enabling factors and enforcement tools used for the quarantine, as well as the level of civil liberties enjoyed

by citizens in the relevant country, how empowered those individuals are, and how much trust citizens have in their government. These factors are important to evaluate, as the willingness of a society to concede civil liberties is directly related to both levels of insecurity and trust in government.^{49, 50} The less trust people have in government, the less willing they are to sacrifice civil liberties, even if they acknowledge a threat to their security. The quarantine described in Liberia, that resulted in a shooting death, is an example of what can happen when there is distrust in the government and civil liberties are curtailed.

Thus, in order for a population to willingly participate in quarantine they: 1) need to acknowledge that the disease is a threat to their security or the security of their community, 2) trust that the government response will, in fact, mitigate the consequences of the disease, and 3) be willing to sacrifice individual civil liberties for the betterment of the group.

Shifting the Culture of Quarantine

Changing the culture of quarantine in the United States will require a social, cultural and legal shift. Decision makers will need to explore incentives and enabling factors, such as payment, job security, and enforcement in cases of noncompliance, as well as consider a social marketing campaign to change public perceptions of quarantine. The overall intent is to make the quarantine experience much like jury duty. That is to say, that it is perceived more as a social responsibility rather than a punishment. While few would describe the jury duty

experience as enjoyable, citizens participate when told. Financial support, albeit minimal, is provided to at least offset associated transportation costs, employees often have their jobs protected, citizens are trusted to serve when called, law enforcement is only engaged when someone is noncompliant, and the public respects the societal obligation. These factors also hold true for military reservists called to deploy. Is it possible to have the public perceive quarantine as a similar type of societal obligation?

Proposal

Below is a proposal to put into place a series of laws, enabling factors and enforcement mechanisms to create an environment in which the public can trust the government to institute a quarantine in a manner that is respectful of the population, encourages quarantine as a social responsibility, and eases the process of trading civil liberties for security of the community.

Legal environment

There is a robust body of laws and regulations at the federal level to support police powers to enforce quarantine and isolation in control of a communicable disease, and broad laws and regulations at the state level that vary greatly between states, but still tend to support strong policy powers for public health officials.⁵¹ Non-adherence to a federal quarantine is punishable by a fine and/or prison time.⁵² Less attention has been paid to the legal and regulatory environment to support individuals who may be quarantined, although some aspects of employment law

have been explored by the Congressional Research Service.⁵³ A 2007 paper by Rothstein and Talbott investigated job security and income replacement laws to meet the basic needs of quarantined individuals.⁵⁴ They identified eight states that had passed legislation to protect the job of a quarantined individual, and provided recommendations for a federal job protection law for quarantined individuals and the people who provide them care. Based on their

Proposal: Legal and Regulatory Environment

- Strong local and state police powers for public health professionals to call for and enforce quarantine. Federal law to call for and enforce quarantine for relevant situations.
- Local, state and federal law to protect employment status of quarantined individuals
- Local, state and federal law to provide payment (even minimal) for individuals not receiving employment wages.

recommendations, and current existing authorities and decision makers should consider both federal and state level legislation and regulations to protect the employment status of quarantined individuals, and provide a minimal daily or weekly stipend, that could be forfeited if employers elected to provide full time pay to quarantined employees.

Enabling Factors

Public health officials around the country responsible for tracking down and isolating cases of tuberculosis are experts in understanding personal behaviors and the needs of people asked to stay away from the general public for extended periods of time.⁵⁵ Jurisdictions that have the resources are most successful when able to provide incentives to facilitate isolation, including provision of groceries and other household support (like paying heating bills), communications devices to enable parents to talk to children (e.g. Skype, FaceTime), assistance in supporting working or schooling remotely, or entertainment resources (books or movies). In some cases, jurisdictions provide physical space to support isolation, including reserving hotel rooms or rented homes, when it is not feasible for an individual to stay in his or her current living environment. Every jurisdiction will approach incentives differently, but it is important for decision makers to think about the types of incentives and resources that will facilitate quarantine, and make it less burdensome on the individual. At a minimum, there should be a plan in place for the delivery of food and water, and provision of a safe and humane living space and tools for communication.

Enforcement

Enforcement of quarantine should occur along a spectrum of noncompliance. Unfortunately, any monitoring system and restriction of movements will infringe upon civil liberties. Systems used in Southeast Asia during SARS and MERS,

however, might serve as a good example for a U.S. model, when taken together with the other tenants of a changing quarantine culture. Decision makers should consider a monitoring system that involves regular reporting of temperature or other clinical symptoms through either phone or Internet. Municipalities may also consider video monitoring: a quarantined individual receives a phone call and must immediately appear in front of the video monitor, but during all other times, the

Proposal: Development of Enabling Factors

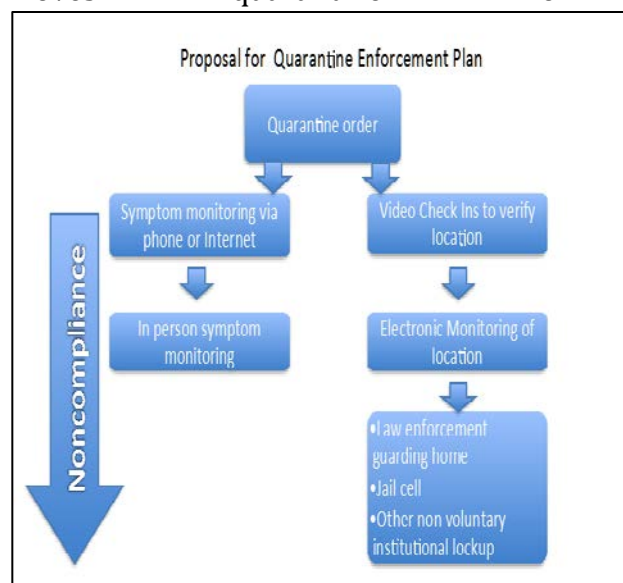
- Commitment in policy and in budgeting to providing food and water to quarantined individuals.
- Plan and budget to assist individuals in making their own homes safe and humane for quarantine (may involve paying for utilities).
- Development of a plan and budget to house quarantined individuals in safe and humane locations if they cannot be in their homes.
- Plan and budget to provide communication devices and other goods and services to facilitate the quarantine.

monitor can be turned off. If an individual fails to appear in front of the monitor, or if otherwise identified leaving a home quarantine, the individual could be told to wear an electronic monitor bracelet or anklet. If the individual is still found to be noncompliant, then they could be subject to fines, incarceration, or other coherence by law enforcement. These procedures would, of course, vary by jurisdiction, available resources, and regulatory process. While Americans may be less

supportive of these measure than citizens of other countries.⁵⁶, they may be much more supportive if faced with an alternative situation involving law enforcement.

Public Perception

Changing public perception of quarantine will require a cultural shift that moves quarantine from



a punishment to a social responsibility; a personal sacrifice for the betterment of the larger community. The first step is to create the appropriate legal and regulatory environment, and commit resources to a program to make the actual process of quarantine more palatable. Changing public perception of quarantine will require a full, sustained marketing campaign, utilizing social media, policy figures, and direct outreach to communities.

No one, with the possible exception of Thomas Hobbes⁵⁷, expects that Americans will gladly sacrifice their individual rights for the protection of the

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state. Nor does anyone expect Americans to excitedly serve jury duty, but citizens perform this duty as an obligation to being part of a larger community, and are recognized for it. We can change the public discourse so quarantine is seen as a

social responsibility; a burden on an individual, accepted in order to provide for the wellbeing of the community and security of the country.

Select examples of quarantine use, by political/social environment and methodologies used to enact quarantine													
	Political/Social Environment			Methods for Quarantine									
	Civil Liberties	Empowerment	Trust in Government	Legal	Enablers	Enforcement	Electronic						
				Fine	Imprisonment	Food/water	Shelter	Payment	Military/police	Voluntary	Video	Monitoring	
Liberia			(127/148)										
Sierra Leone			(89/148)										
Singapore			(3/148)										
South Korea			(74/148)										
Taiwan			(26/148)										
United States			(35/148)										

Sources and Notes:

Civil Liberties

Civil Liberties measure comes from Freedom in the World report, produced by the Freedom House, available at: <https://freedomhouse.org/report-types/freedom-world#:~:q=VcMyq3hbVqs>. (accessed 8/30/15). Data for the United States, Sierra Leone, Liberia and South Korea taken from the 2015 report. Data from Singapore and Taiwan from 2003, to correspond with the dates of the SARS related quarantine. Civil liberties scored on 7 point scale, with 1 being most free and 7 being least free. Scores of 1 and 2 receive full circle. Scores of 3-5 receive half circle. Scores of 6-7 receive empty circle

Empowerment

Empowerment measure comes from the Empowerment Rights Index from the CIRI Human Rights Data. Cingranelli DL, Richards DL and Clay KC. CIRI Human Rights Data Project. Short Variable Descriptions for Indicators in the Cingranelli-Richards (CIRI) Human Rights Dataset. Available at: <http://www.humanrightsdata.com/p/data-documentation.html>. Empowerment measure combines foreign movement domestic movement, freedom of speech, freedom of assembly, workers rights, elector self determination and freedom of religion. The measure ranks 0 for no rights and 14 for full rights. On this chart, a ranking of 1-4 is an empty circle, 5-9 is a half filled circle, and 10-14 is a full circle. Data for Liberia, Sierra Leone, Korea and the US is from 2011 (latest available data). Data for Taiwan and Singapore from 2003

Trust in Government

Institution indicator from the World Economic Forum, Global Competitiveness Report, is utilized by Clarke and Light to determine public perception of governments. The institution pillar measures, among other things, public trust in politicians, irregular payments and bribes, judicial independence, favoritism in decisions of government officials, wastefulness of government spending, burden of government regulation, efficiency of the legal framework, transparency of government policymaking and reliability of police services (it also looks at business costs of terrorism, ethical behavior of firms and 5 additional factors related to corporate institutions.) The ranking is from 1-7 with 7 being the strongest score. Full circle represents countries with score of 6-7; half circle for 3-5; empty circle for 1-3. Global ranking (out of 148 countries) is included in parentheses.

References: World Economic Forum, "Global Competitiveness Report 2013-2014," K. Schwab (Ed.), Geneva, Switzerland; Nerissa Clarke and Paul C. Light, "Global Trust in Government," New York, NY: The Volcker Alliance, 2013

Fine and Imprisonment

For the United States, used law for federal quarantine. For South Korea, used law just passed, although not in place during the MERS quarantine

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For Taiwan: Teach English in Taiwan, TealIt.com FAQs on SARS. Available at: <http://www.tealit.com/sarsreport.html>

For Singapore: Rothstein, et al. Quarantine and Isolation: Lessons Learned from SARS. Report to the CDC. November 2003.

Food/Water

Half circles indicate a country that did not always provide food and water to quarantined individuals, or provided it late

For Liberia: Nyenswah T, et al. Community Quarantine to Interrupt Ebola Virus Transmission- Mawah Village, Bong County, Liberia, August-October 2014. MMWR. February 27, 2015; 64(07): 179-182. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6407a4.htm>

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For Singapore, Taiwan and U.S., references in main text.

Shelter

All references for Shelter found in main text

Payment

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Singapore: Rothstein et al. Quarantine and Isolation: Lessons Learned from SARS. November 2003. A Report to the Centers for Disease Control and Prevention

Enforcement

All references for Enforcement found in main text. Half circles for the U.S. indicate that some States utilized the methods, but they were not performed consistently

Empty circles

Empty circle means that the activity did not happen during the quarantine in that country.

The views expressed in this report are those of the author, and do not necessarily reflect the positions of any of the institutions to which she is affiliated, the Scowcroft Institute of International Affairs, the Bush School of Government and Public Service, or Texas A&M University.

Rebecca Katz

Rebecca Katz is an Associate Professor of Health Policy and Emergency Medicine at The George Washington University School of Public Health and Health Services. Her research is focused on public health preparedness, global health diplomacy, biosurveillance, and the intersection of infectious diseases and national security. Current research projects are focused on implementation of the International Health Regulations (2005). She also works on issues related to foodborne illness surveillance and response, and biosecurity and biosafety. Since 2004, Dr. Katz has been a consultant to the U.S. Department of State, working on issues related to the Biological Weapons Convention and emerging and pandemic threats.

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